1/25

LINE	FEXT	NEXT
0	4	7
1	4	7
2	4	7
3	4	6
4	4	7
5	4	7
6	4	7
7	4	7
8	4	6
9	4	7
10	4	7
11	4	7
12	4	6
13	5	6
14	4	7
15	4	7
16	4	7
17	4	6
18	4	7
19	4	7
20	4	7
21	4	6
22	5	6
23	4	7
24	4	7
25	4	7
26	4	6
27	4	7
28	4	7
29	4	7
30	4	7
31	4	6

F I G. I

FIG. 2

START

S10 — SET TWO FRAME COUNTERS AT 346

S11 — FRAME DURING RECEPTION IS FEXT ?
NO →
YES ↓

S12 — FIVE CONSECUTIVE FEXT FRAMES INCLUDING FRAME DURING RECEPTION ?
NO →
YES ↓

S13 — EITHER FRAME COUNTER INDICATES 346 ?
YES →
NO ↓

S14 — SET ONE FRAME COUNTER AT 145 AND THE OTHER FRAME COUNTER AT 242

S16 — EITHER FRAME COUNTER INDICATES 346 ?
YES →
NO ↓

S17 — ADD 1 TO EACH OF TWO FRAME COUNTERS AND RETURN THEM TO 0 AT 345

S15 — RECEIVE FOLLOWING FRAME

S18 — ADOPT ONE FRAME COUNTER INDICATING 144 OR 241 AS PRESENT NUMERICAL VALUE AS PROPER FRAME COUNTER (STOP THE OTHER)

END

3 / 25

☑ FEXT FRAME
☐ NEXT FRAME

FIG. 3

4 / 25

LINE	FEXT	NEXT	DIFFER-ENCE
0.0	4	7	-3
1.0	4	7	-3
2.0	4	7	-3
3.0	4	6	-2
4.0	4	7	-3
5.0	4	7	-3
6.0	4	7	-3
7.0	4	7	-3
8.0	4	6	-2
9.0	4	7	-3
10.0	4	7	-3
11.0	4	7	-3
12.0	4	6	-2
13.0	5	6	-1
14.0	4	7	-3
15.0	4	7	-3
16.0	4	7	-3
17.0	4	6	-2
18.0	4	7	-3
19.0	4	7	-3
20.0	4	7	-3
21.0	4	6	-2
22.0	5	6	-1
23.0	4	7	-3
24.0	4	7	-3
25.0	4	7	-3
26.0	4	6	-2
27.0	4	7	-3
28.0	4	7	-3
29.0	4	7	-3
30.0	4	7	-3
31.0	4	6	-2

FIG. 4

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanae AMATSUBO, et al.
SHEET 5 OF 25

5 / 25

	REFERENCE PATTERN 0	REFERENCE PATTERN 1	REFERENCE PATTERN 2	REFERENCE PATTERN 3
FEXT-NEXT DIFFERENCE		-3	-1	-1
		-3	-3	-3
		-3	-3	-3
		-3	-3	-3
	-2	-2	-2	-2
	-3	-3	-3	-3
	-3	-3	-3	-3
	-3	-3	-3	-3
	-2	-2	-2	-3
"FEXT"	4	5	...	...
FRAME NUMBER	47	144	237	334

FIG. 5

6 / 25

n	REFERENCE PATTERN 0 REF[0,n]	REFERENCE PATTERN 1 REF[1,n]	REFERENCE PATTERN 2 REF[2,n]	REFERENCE PATTERN 3 REF[3,n]
9		-3		
8		-3	-1	-1
7		-3	-3	-3
6		-3	-3	-3
5	-2	-2	-3	-3
4	-3	-3	-2	-2
3	-3	-3	-3	-3
2	-3	-3	-3	-3
1	-2	-2	-3	-3
0	4	5	-2	-3

FIG. 6

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 7 OF 25

7 / 25

FIG. 7

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 8 OF 25

8 / 25

CONTENTS OF ARRAYS A

	DURING RECEPTION OF FEXT	DURING RECEPTION OF NEXT
A[9]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES NINE LINE BEFORE	
A[8]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES EIGHT LINES BEFORE	
A[7]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES SEVEN LINE BEFORE	
A[6]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES SIX LINE BEFORE	
A[5]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES FIVE LINE BEFORE	
A[4]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES FOUR LINE BEFORE	
A[3]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES THREE LINE BEFORE	
A[2]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES TWO LINE BEFORE	
A[1]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES IN THE LINE BEFORE	
A[0]	NUMBER OF CONSECUTIVE FEXT FRAMES BEFORE FRAME DURING RECEPTION	DIFFERENCE BETWEEN NUMBERS OF THE NEAREST PREVIOUS CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES BEFORE FRAME DURING RECEPTION

FIG. 8

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 9 OF 25

9/25

FIG. 9

10/25

LINE	NEXT	FEXT	DIFFER-ENCE
0.5	7	4	3
1.5	7	4	3
2.5	7	4	3
3.5	6	4	2
4.5	7	4	3
5.5	7	4	3
6.5	7	4	3
7.5	7	4	3
8.5	6	4	2
9.5	7	4	3
10.5	7	4	3
11.5	7	4	3
12.5	6	5	1
13.5	6	4	2
14.5	7	4	3
15.5	7	4	3
16.5	7	4	3
17.5	6	4	2
18.5	7	4	3
19.5	7	4	3
20.5	7	4	3
21.5	6	5	1
22.5	6	4	2
23.5	7	4	3
24.5	7	4	3
25.5	7	4	3
26.5	6	4	2
27.5	7	4	3
28.5	7	4	3
29.5	7	4	3
30.5	7	4	3
31.5	6	4	2

FIG.10

	REFERENCE PATTERN 0'	REFERENCE PATTERN 1'	REFERENCE PATTERN 2'	REFERENCE PATTERN 3'
		3		1
		3	2	2
		3	3	3
	3	3	3	3
FEXT-NEXT DIFFERENCE	2	2	3	3
	3	3	2	2
	3	3	3	3
	3	3	3	3
	2	1	3	3
"NEXT"	...	...	6	7
FRAME NUMBER	47	144	237	334

FIG. 11

12 / 25

n	REFERENCE PATTERN 0' REF[0',n]	REFERENCE PATTERN 1' REF[1',n]	REFERENCE PATTERN 2' REF[2',n]	REFERENCE PATTERN 3' REF[3',n]
9				1
8		3	2	2
7		3	3	3
6		3	3	3
5	3	3	3	3
4	2	2	2	2
3	3	3	3	3
2	3	3	3	3
1	3	3	3	3
0	2	1	6	7

FIG. 12

13 / 25

FIG. 13

START

INITIALIZE RECEIVING PATTERN MEMORY — S30

(1) PREVIOUS FRAME IS NEXT AND FRAME DURING RECEPTION IS FEXT

FIRST RECEPTION ? — S31
YES
NO

SEVEN CONSECUTIVE NEXT FRAMES INCLUDING PREVIOUS FRAME ? — S33
NO
YES

COLLATE PATTERN WITH REFERENCE PATTERN 2, SET FRAME COUNTER AT 237 WHEN THEY ARE THE SAME, END PROCESSING — S34

UPDATE RECEIVING PATTERN MEMORY — S35

(2) BOTH PREVIOUS FRAME AND FRAME DURING RECEPTION ARE FEXT

UPDATE RECEIVING PATTERN MEMORY — S37

FIVE CONSECUTIVE FEXT FRAMES INCLUDING FRAME DURING RECEPTION ? — S36
NO
YES

COLLATE PATTERN WITH REFERENCE PATTERN 1, SET FRAME COUNTER AT 144 WHEN THEY ARE THE SAME, END PROCESSING — S38

(3) PREVIOUS FRAME IS FEXT AND RECEPTION IS NEXT

FIVE CONSECUTIVE FEXT FRAMES INCLUDING PREVIOUS FRAME ? — S39
NO
YES

COLLATE PATTERN WITH REFERENCE PATTERN 0, SET FRAME COUNTER AT 47 WHEN THEY ARE THE SAME, END PROCESSING — S40

UPDATE RECEIVING PATTERN MEMORY — S41

(4) BOTH PREVIOUS FRAME AND FRAME DURING RECEPTION ARE NEXT

UPDATE RECEIVING PATTERN MEMORY — S42

SEVEN CONSECUTIVE NEXT FRAMES INCLUDING FRAME DURING RECEPTION ? — S43
NO
YES

COLLATE PATTERN WITH REFERENCE PATTERN 3, SET FRAME COUNTER AT 334 WHEN THEY ARE THE SAME, END PROCESSING — S44

UPDATE RECEIVING PATTERN MEMORY — S32

RECEIVE FOLLOWING FRAME

14 / 25

CONTENTS OF ARRAYS B

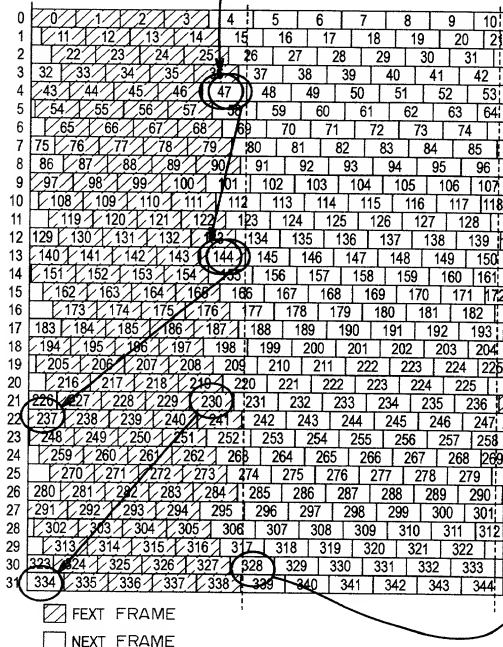|	DURING RECEPTION OF FEXT	DURING RECEPTION OF NEXT
B[9]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES NINE LINE BEFORE	
B[8]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES EIGHT LINE BEFORE	
B[7]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES SEVEN LINE BEFORE	
B[6]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES SIX LINE BEFORE	
B[5]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES FIVE LINE BEFORE	
B[4]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES FOUR LINE BEFORE	
B[3]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES THREE LINE BEFORE	
B[2]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES TWO LINE BEFORE	
B[1]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES IN THE LINE BEFORE	
B[0]	NUMBER OF CONSECUTIVE NEXT FRAMES BEFORE FRAME DURING RECEPTION	DIFFERENCE BETWEEN NUMBERS OF THE NEAREST PREVIOUS CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES BEFORE FRAME DURING RECEPTION

FIG. 14

15/25

	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	11	12	13	14	15	16	17	18	19	20	21
2	22	23	24	25	26	27	28	29	30	31	
3	32	33	34	35	36	37	38	39	40	41	42
4	43	44	45	46	47	48	49	50	51	52	53
5	54	55	56	57	58	59	60	61	62	63	64
6	65	66	67	68	69	70	71	72	73	74	
7	75	76	77	78	79	80	81	82	83	84	85
8	86	87	88	89	90	91	92	93	94	95	96
9	97	98	99	100	101	102	103	104	105	106	107
10	108	109	110	111	112	113	114	115	116	117	118
11	119	120	121	122	123	124	125	126	127	128	
12	129	130	131	132	133	134	135	136	137	138	139
13	140	141	142	143	144	145	146	147	148	149	150
14	151	152	153	154	155	156	157	158	159	160	161
15	162	163	164	165	166	167	168	169	170	171	172
16	173	174	175	176	177	178	179	180	181	182	
17	183	184	185	186	187	188	189	190	191	192	193
18	194	195	196	197	198	199	200	201	202	203	204
19	205	206	207	208	209	210	211	212	213	214	215
20	216	217	218	219	220	221	222	223	224	225	
21	226	227	228	229	230	231	232	233	234	235	236
22	237	238	239	240	241	242	243	244	245	246	247
23	248	249	250	251	252	253	254	255	256	257	258
24	259	260	261	262	263	264	265	266	267	268	269
25	270	271	272	273	274	275	276	277	278	279	
26	280	281	282	283	284	285	286	287	288	289	290
27	291	292	293	294	295	296	297	298	299	300	301
28	302	303	304	305	306	307	308	309	310	311	312
29	313	314	315	316	317	318	319	320	321	322	
30	323	324	325	326	327	328	329	330	331	332	333
31	334	335	336	337	338	339	340	341	342	343	344

▨ FEXT FRAME

☐ NEXT FRAME

FIG. 15

16 / 25

WHEN FEXT-NEXT DIFFERENCE IS USED

REFERENCE PATTERN	FRAME SYNCHRONIZATION	HYPERFRAME SYNCHRONIZATION
0	238~334	47
1	335~344,0~42	144
2	43~140	237
3	141~237	334

FIG. 16

WHEN NEXT-FEXT DIFFERENCE IS USED

REFERENCE PATTERN	FRAME SYNCHRONIZATION	HYPERFRAME SYNCHRONIZATION
0'	231~328	47
1'	329~344,0~47	144
2'	48~144	237
3'	145~230	334

FIG. 17

WHEN FEXT-NEXT DIFFERENCE AND
NEXT-FEXT DIFFERENCE ARE COMBINED

REFERENCE PATTERN	FRAME SYNCHRONIZATION	HYPERFRAME SYNCHRONIZATION
0	238~334	47
1'	335~344,0~47	144
2'	48~144	237
3	145~237	334

FIG. 18

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 17 OF 25

17 / 25

FIG. 19

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 18 OF 25
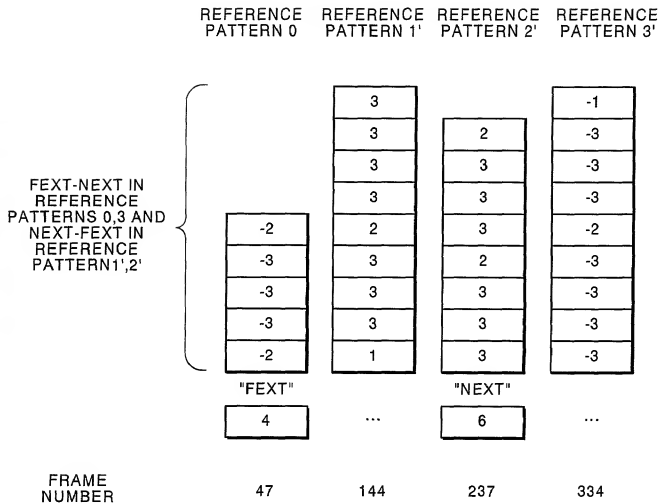
18 / 25

	REFERENCE PATTERN 0 REF[0,n]	REFERENCE PATTERN 1' REF[1',n]	REFERENCE PATTERN 2' REF[2',n]	REFERENCE PATTERN 3' REF[3,n]
n				
8		3	2	1
7		3	3	3
6		3	3	3
5	2	3	3	3
4	3	2	2	2
3	3	3	3	3
2	3	3	3	3
1	2	3	3	3
0	4	1	6	3

FIG. 20

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 19 OF 25

19 / 25

FIG. 21

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 20 OF 25
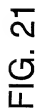
20 / 25

CONTENTS OF ARRAYS A

	DURING RECEPTION OF FEXT	DURING RECEPTION OF NEXT
A[8]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES EIGHT LINE BEFORE	
A[7]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES SEVEN LINE BEFORE	
A[6]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES SIX LINE BEFORE	
A[5]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES FIVE LINE BEFORE	
A[4]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES FOUR LINE BEFORE	
A[3]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES THREE LINE BEFORE	
A[2]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES TWO LINE BEFORE	
A[1]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES IN THE LINE BEFORE	
A[0]	NUMBER OF CONSECUTIVE FEXT FRAMES BEFORE FRAME DURING RECEPTION	DIFFERENCE BETWEEN NUMBERS OF THE NEAREST PREVIOUS CONSECUTIVE FEXT FRAMES AND CONSECUTIVE NEXT FRAMES BEFORE FRAME DURING RECEPTION

FIG. 22

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 21 OF 25

21 / 25

CONTENTS OF ARRAYS B

	DURING RECEPTION OF FEXT	DURING RECEPTION OF NEXT
B[8]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES EIGHT LINE BEFORE	
B[7]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES SEVEN LINE BEFORE	
B[6]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES SIX LINE BEFORE	
B[5]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES FIVE LINE BEFORE	
B[4]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES FOUR LINE BEFORE	
B[3]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES THREE LINE BEFORE	
B[2]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES TWO LINE BEFORE	
B[1]	DIFFERENCE BETWEEN NUMBERS OF CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES IN THE LINE BEFORE	
B[0]	NUMBER OF CONSECUTIVE NEXT FRAMES BEFORE FRAME DURING RECEPTION	DIFFERENCE BETWEEN NUMBERS OF THE NEAREST PREVIOUS CONSECUTIVE NEXT FRAMES AND CONSECUTIVE FEXT FRAMES BEFORE FRAME DURING RECEPTION

FIG. 23

22/25

	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	11	12	13	14	15	16	17	18	19	20	21
2	22	23	24	25	26	27	28	29	30	31	
3	32	33	34	35	36	37	38	39	40	41	42
4	43	44	45	46	47	48	49	50	51	52	53
5	54	55	56	57	58	59	60	61	62	63	64
6	65	66	67	68	69	70	71	72	73	74	
7	75	76	77	78	79	80	81	82	83	84	85
8	86	87	88	89	90	91	92	93	94	95	96
9	97	98	99	100	101	102	103	104	105	106	107
10	108	109	110	111	112	113	114	115	116	117	118
11	119	120	121	122	123	124	125	126	127	128	
12	129	130	131	132	133	134	135	136	137	138	139
13	140	141	142	143	144	145	146	147	148	149	150
14	151	152	153	154	155	156	157	158	159	160	161
15	162	163	164	165	166	167	168	169	170	171	172
16	173	174	175	176	177	178	179	180	181	182	
17	183	184	185	186	187	188	189	190	191	192	193
18	194	195	196	197	198	199	200	201	202	203	204
19	205	206	207	208	209	210	211	212	213	214	215
20	216	217	218	219	220	221	222	223	224	225	
21	226	227	228	229	230	231	232	233	234	235	236
22	237	238	239	240	241	242	243	244	245	246	247
23	248	249	250	251	252	253	254	255	256	257	258
24	259	260	261	262	263	264	265	266	267	268	269
25	270	271	272	273	274	275	276	277	278	279	
26	280	281	282	283	284	285	286	287	288	289	290
27	291	292	293	294	295	296	297	298	299	300	301
28	302	303	304	305	306	307	308	309	310	311	312
29	313	314	315	316	317	318	319	320	321	322	
30	323	324	325	326	327	328	329	330	331	332	333
31	334	335	336	337	338	339	340	341	342	343	344

▨ FEXT FRAME

☐ NEXT FRAME

F I G. 24

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 23 OF 25

23 / 25

FIG. 25

OBLON, SPIVAK, ET AL
DOCKET #: 206587US2
INV: Takanao AMATSUBO, et al.
SHEET 24 OF 25

24 / 25

30

32

34

FRAME
RECEIVING
PORTION

CPU

RAM

ROM

36

38

FIG. 26

25 / 25

FIG. 27